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Please send me a copy of GB 452,579 to CM1-8B19 for 09/700,494. Thank you.

Any case pending 3 yrs handle special

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703-308-1701

MEB

PATENT SPECIFICATION

Convention Date (Germany) : Feb. 24, 1934. **452,579**

Application Date (In United Kingdom) : Feb. 25, 1935. No. 5956/35.

Complete Specification Accepted ; Aug. 25, 1936.

COMPLETE SPECIFICATION

Manufacture of Fluorinated Organic Compounds

We, I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT, a Joint Stock Company organised according to the laws of Germany, of Frankfurt a/Main, Germany, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to the manufacture of fluorinated organic compounds by causing hydrogen fluoride, if desired in the presence of an inert solvent, to act upon a compound containing at least three carbon atoms, at least one carboxyl group and at least one treble bond. By the addition of two molecules of hydrogen fluoride at the treble bond there can thus be obtained saturated compounds containing fluorine, for instance, difluoro-stearic acid from stearolic acid. This is surprising, for it could be expected that the molecule would be opened up at the treble bond by the action of the hydrogen fluoride. The application of a raised pressure and a raised temperature is not necessary for the addition.

Compounds suitable for application of the invention are, for instance: acetylene-di-carboxylic acid, stearolic acid, phenyl-propiolic acid or the like. As a solvent there may, for instance, be used methylene chloride, carbontetrachloride or the like.

In many cases it is also possible to add only one molecular proportion of hydrogen fluoride at the treble bond. There are then obtained fluorinated olefine carboxylic acids. Bodies with more than one treble bond may also be suitable for the addition of hydrogen fluoride by this invention. The fluorinated products may, if desired, be transformed into their derivatives, for instance, into amides and esters.

The products may be applied for various industrial purposes, for instance, as intermediate products, as fungicides, insecticides and for disinfection; the products of high molecular weight may be used as adjuvants in the textile industry. In case they are insoluble in water they may be applied in the form of their emulsions.

The following Example illustrates the invention, the parts being by weight:

280 parts of stearolic acid are dissolved in about 250 parts of methylene chloride and the solution is treated at 0°C-10°C., while cooling, with gaseous anhydrous hydrogen fluoride. The mass is freed from the excess of hydrogen fluoride by washing it with water. The solvent is then distilled and the residue is recrystallised several times from a small quantity of alcohol. The 9:10-difluoro-stearic acid thus obtained melts at 70°C-74°C.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is :—

1. A manufacture of fluorinated organic compounds wherein hydrogen fluoride is caused to act upon a body containing at least three carbon atoms, at least one carboxyl group and at least one treble bond.

2. A manufacture of fluorinated organic compounds as referred to in Claim 1, wherein the hydrogen fluoride is caused to act in presence of an inert solvent.

3. A manufacture of fluorinated organic compounds substantially as described with reference to the Example herein.

4. Fluorinated organic compounds when prepared or produced by the process of manufacture particularly described and ascertained herein or by any process which is an obvious chemical equivalent thereof.

Dated this 25th day of February, 1935.

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[Price 1/-]